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Ephemeris of the Satellites of Uranus, 1891. By A. Marth.

			Ariel.					*Umbriel.*	
Greenwich Noon. 1891.	P	a_1	b_1	u_1—U	Diff.	a_2	b_2	u_2—U	Diff.
	°	″	″	°	°	″	″	°	°
Feb. 26	279 658	14·80	+10·37	37.62	1428·40	20·61	+14·45	251·45	868·68
Mar. 8	279 747	14·90	10·40	26·02	·36	20·76	14·49	40·13	·66
18	279·859	14·99	10·41	14·38	·33	20·89	14·50	188·79	·64
28	279·989	15·06	10·39	2·71	·30	20·98	14·48	337·43	·61
Apr. 7	280·131	15·11	10·35	351·01	·27	21·05	14·42	126 04	·60
17	·277	15·13	10·28	339·28	·24	21·08	14·32	274·64	·58
27	·421	15·12	10·20	327·52	·23	21·07	14·21	63·22	·58
May 7	·557	15·09	+10·10	315·75	·21	21·03	+14·06	211·80	·57
17	·681	15·04	9·99	303·96	·21	20 95	13·91	0·37	·57
27	·787	14·96	9·87	292·17	·20	20·84	13·75	148·94	·57
June 6	·871	14·86	9·76	280·37	·21	20·71	13·59	297·51	·58
16	·931	14·75	9·65	268·58	·21	20·55	13·44	86·09	·59
26	·965	14·63	9·54	256·79	·23	20·39	13·29	234·68	·61
July 6	·972	14·50	9·45	245·02	1428·24	20·21	13·16	29·29	868·62
16	280·952	14·37	+9·37	233·26		20·02	+13·06	171·91	

	Titania.						*Oberon.*		
	a_3	b_3	u_3—U	Diff.	a_4	b_4	u_4—U	U	B
	″	″	°	°	″	″	°	°	°
Feb. 26	33·81	+23·70	113·37	413·48	45·21	+31·69	43·71	358·499	+44·50
Mar. 8	34·05	23·77	166·85	·46	45·54	31·79	311·06	·563	44·27
18	34·26	23·79	220·31	·44	45·82	31·81	218·39	·644	43·97
28	34·42	23·75	273·75	·42	46 03	31·76	125·70	·737	43·62
Apr. 7	34·52	23·65	327·17	·42	46·17	31·62	33·00	·837	43·23
17	34·57	23·50	20·59	·41	46·23	31·42	300·30	358·940	42·82
27	34·56	23·30	74·00	·41	46·21	31·16	207·59	359·042	42·40
May 7	34·49	+23·07	127·41	·41	46·12	+30·85	114·88	·138	+41·99
17	34·36	22·82	180·82	·41	45·95	30·52	22·18	·224	41·61
27	34·18	22·56	234·23	·43	45·72	30·16	289·48	·297	41·28
June 6	33·97	22·29	287·66	·45	45 42	29·81	196·80	·355	41·01
16	33·71	22·04	341·11	·45	45·09	29·47	104·14	·395	40·81
26	33·44	21·80	34·56	·47	44·72	29·16	11·49	·416	40·69
July 6	33·14	21·59	88·03	413·49	44·32	28·88	278·86	·417	40 66
16	32·80	+21·42	141·52		43·92	+28 65	186 24	359·400	+40·71

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The values of P, a, b, $u-\mathrm{U}$ are to be interpolated for the times for which the apparent positions of the satellites are required, and the position-angles p and distances s are then found by means of the formulæ:

$$s \sin(p-\mathrm{P}) = a \sin(u-\mathrm{U});$$
$$s \cos(p-\mathrm{P}) = b \cos(u-\mathrm{U}).$$

Titania and *Oberon* will appear in opposite directions from the centre of the planet:

Mar. 5 $13^{\mathrm{h}}{\cdot}2$ Mar. 30 $4^{\mathrm{h}}{\cdot}5$ Apr. 23 $19^{\mathrm{h}}{\cdot}8$ May 18 $11^{\mathrm{h}}{\cdot}1$ June 12 $2^{\mathrm{h}}{\cdot}4$

and in the same direction

Mar. 17 $20^{\mathrm{h}}{\cdot}8$ Apr. 11 $12^{\mathrm{h}}{\cdot}1$ May 6 $3^{\mathrm{h}}{\cdot}4$ May 30 $18^{\mathrm{h}}{\cdot}8$ June 24 $10^{\mathrm{h}}{\cdot}1$

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